

# APPENDIX C

## ADEQ TMDL PRIORITY RANKING AND SCHEDULE

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING	TMDL SCHEDULE
<b>Bill Williams Watershed</b>				
Alamo Lake 15030204-0040 1,414 acres	Ammonia (2004), High pH (1996) Low dissolved oxygen (2006)	Low dissolved oxygen, ammonia, and high pH may be symptoms of narrative nutrient violations, and may indicate that toxic conditions are occurring for lake aquatic life. New narrative nutrient implementation procedures have been drafted, and once adopted should be applied to this lake. Ongoing monitoring by the US Fish and Wildlife Service (contracted by the US Army Corps of Engineers) should provide data needed to support TMDL development.	Medium	To initiate in 2010. To complete in 2012.
Bill Williams River From Alamo Lake to Castaneda Wash 15030204-003 35.9 miles	Ammonia, low dissolved oxygen, high pH (2006)	Ammonia is considered toxic to aquatic life and low dissolved oxygen and high pH may pose further stresses on the aquatic community. These stressors are generally associated with excess nutrients. To coordinate with Alamo Lake TMDL development as this reach receives the discharge from Alamo Lake, and is therefore, the probable source of the water quality problems.	Medium	To initiate in 2010. To complete in 2012.
Santa Maria River From Little Sycamore Creek to Little Shipp Wash 15030203-013 6.8 miles	Mercury (2006)	Water in the Santa Maria River flows to Lake Alamo, which has a fish consumption advisory for mercury. This drainage receives runoff from historic mining sites. Mercury loadings to these reaches should be addressed in the Alamo Lake mercury TMDL currently being developed. Therefore, development of a separate mercury TMDL for these reaches is a low priority.	Low	To initiate in 2011. To complete in 2013.
<b>Colorado-Grand Canyon Watershed</b>				
Colorado River From Lake Powell to Paria River 14070006-001 16 miles	Selenium (2006)	This TMDL will be complex due to the size of the drainage area, natural background in this geology, and contributions from other states and Indian lands. The two federally protected species occur in this area (humpback chub and razorback sucker) should <u>not</u> be negatively impacted by this concentration of selenium. ADEQ will coordinate development of selenium TMDLs along the Colorado.	Low	To initiate in 2010. To complete in 2012.
Colorado River From Parashant Canyon to Diamond Creek 15010002-003 28 miles	Selenium (2004), Suspended Sediment Concentration (2004)	Development of this TMDL will be complex due to the size of the drainage area, natural background in this sandstone geology, and contributions from other states and Indian lands. Two federally protected species occur in this area (humpback chub and razorback sucker), but they should <u>not</u> be negatively impacted by the suspended sediment or this concentration of selenium. Dates chosen reflect that ADEQ will be coordinating development of selenium TMDLs along the Colorado River.	Low	To initiate in 2010. To complete in 2012.
Paria River From Utah border to Colorado River 14070007-123 29 miles	Suspended Sediment Concentration (2004)	Prior monitoring and investigations in this drainage should help support TMDL development; however, further investigation is needed to determine source loadings, especially contributions from natural background in this sandstone geology. Source contributions from Utah may also make this TMDL more complex. Dates chosen reflect that ADEQ will coordinate development of both TMDLs.	Low	To initiate in 2010. To complete by 2012.
	<i>E. coli</i> (2006)	Exceedances of <i>Escherichia coli</i> criteria may represent a significant public health concern if people are swimming or even wading in the water; however, this is a relatively remote canyon, with light recreational use. This TMDL is complex due to source contributions from Utah.	Medium	To initiate in 2010 To complete in 2012.

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING	TMDL SCHEDULE
Virgin River From Beaver Dam Wash to Bend Wash 15010010-003 10 miles	Selenium (2004), Suspended sediment (2004)	Further investigation is needed to determine selenium source loadings. Ongoing monitoring by the U.S. Geological Survey. Determining contributions from Utah and from natural background in this sandstone geology will make developing both TMDLs more complex. Federally protected Virgin River chum and woundfin occur in this area but should not be negatively impacted by this concentration of selenium or suspended sediment. Dates chosen reflect that ADEQ will be coordinating development of selenium TMDLs along the Colorado River, including the Virgin River.	Low	To initiate in 2011. To complete in 2012.
<b>Colorado-Lower Gila Watershed</b>				
Colorado River From Hoover Dam to Lake Mohave 15030101-015 40 miles	Selenium (2004)	The federally protected Yuma clapper rail occurs in this area and could be negatively impacted by elevated levels of selenium as it bioaccumulates in prey species. Long-term monitoring by U.S. Geological Survey should support TMDL development; however, the TMDL will be complex due to contributions from natural sources and other states. Dates chosen reflect that ADEQ will be coordinating development of selenium TMDLs along the Colorado River.	High	To initiate in 2010. To complete in 2012.
Colorado River From Main Canal to Mexico border 15030107-001 32 miles	Selenium (2006)	The federally protected Yuma clapper rail occurs in this area and could be negatively impacted by elevated levels of selenium as it bioaccumulates in prey species. These TMDLs may be complicated by the large number of potential sources as the Colorado River drainage area covers many states in the Southwest. Dates chosen reflect that ADEQ will be coordinating development of selenium TMDLs along the Colorado River.	High	To initiate in 2010. To complete in 2012.
	Low dissolved oxygen (2006)	Low dissolved oxygen may be a symptom of excess nutrient loadings, and may be stressful to aquatic life. These TMDLs may be complicated by the large number of potential sources as the Colorado River drainage area covers many states in the Southwest. Dates chosen reflect that ADEQ will coordinate development of both TMDLs in this reach.	Low	To initiate in 2010. To complete in 2012.
Gila River From Coyote Wash to Fortuna Wash 15070201-003 28 miles	Boron and selenium (2004)	The federally protected Yuma clapper rail occurs in this area and could be negatively impacted by elevated levels of selenium as it bioaccumulates in prey species. Boron may impact downstream agricultural uses, but present a low ecological and human health risk. Both elevated selenium and boron may be associated with the extensive irrigated agriculture in the greater Yuma area. To coordinate the boron investigation with TMDL development upstream at Gillespie Dam and the selenium TMDL development with work on the Colorado River.	High	To initiate in 2009. To complete in 2011.
Painted Rocks Borrow Pit Lake 15070201-1010 180 acres	Low dissolved oxygen (1992)	A diagnostic feasibility study by ADEQ in 1992 concluded that the design and maintenance of this shallow lake was the primary cause of the low dissolved oxygen. Drought conditions have left the lake dry during most of the past five years. The lake is no longer stocked with fish and does not have recreational uses because of the pesticide contamination (see below).	Low	TMDL will be initiated when the lake refills and representative samples can be collected.
<b>Little Colorado Watershed</b>				
Little Colorado River From Silver Creek to Carr Wash 15020002-004 6 miles	<i>E. coli</i> (2004)	Exceedances of <i>Escherichia coli</i> criteria may represent a significant public health concern if people are swimming or even wading in the water. Exceedances may be related to wet weather events. The drainage is more than 8,000 square miles, so determining the source of contamination may be complex. Substantial monitoring data is needed to identify sources.	High	To initiate in 2007. To complete in 2009.

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING	TMDL SCHEDULE
	Suspended sediment (2006)	Sediment may pose a threat to aquatic life. The drainage is more than 8,000 square miles, so determining the source of contamination may be complex. Substantial monitoring data is needed to identify sources. Dates reflect that both TMDLs will be developed at the same time.	Medium	To initiate in 2007. To complete in 2009.
Little Colorado River From Porter Tank Draw to McDonalds Wash 15020008-017 17 miles	Copper and silver (1992)	Copper and silver concentrations may be toxic to aquatic life. Little Colorado spine dace, a federally protected species, occurs in this reach and may be negatively impacted by the copper and silver. Data from a USGS study concluded that the metals may be naturally elevated; however, sources and natural background concentrations need to be further studied. The nature of these pollutants also makes this study complex.	High	To initiate in 2007. To complete in 2009.
	Suspended sediment (2004)	Little Colorado spine dace, a federally protected species, occurs in this reach but should not be negatively impacted by the suspended sediment concentration. This TMDL is complex due to the size of the drainage area. Dates reflect that both TMDLs will be developed at the same time.	Medium	To initiate in 2007. To complete in 2009.
<b>Middle Gila Watershed</b>				
Alvord Park Lake 15060106B-0050 27 acres	Ammonia (2004)	Ammonia poses a significant threat to aquatic life due to its toxic nature. This lake is an important urban recreational area. More investigation is needed to determine the source of the pollutants.	High	To initiate in 2007. To complete in 2009.
Chaparral Lake 15060106B-0300 13 acres	Low dissolved oxygen (2004)	Narrative nutrient implementation guidance, when adopted, will be used to determine if the low dissolved oxygen is related to excess nutrients in the lake. Excess nutrient loads and low dissolved oxygen can stress aquatic life and would be detrimental to this important urban recreational area. Investigation and monitoring is needed to identify sources. Dates reflect that nutrient TMDL development will be coordinated at Phoenix metropolitan area lakes.	Medium	To initiate in 2007. To complete in 2009.
	<i>E. coli</i> (2004)	Although exceedances of <i>E. coli</i> bacteria represent a risk to public health, swimming or wading in the lake are prohibited. However, this is an important recreational area. Dates reflect that TMDL development will be coordinated.	Medium	To initiate in 2007. To complete in 2009.
Cortez Park Lake 15060106B-0410	Low dissolved oxygen and high pH (2004)	Narrative nutrient implementation guidance, when adopted, will be used to determine if the low dissolved oxygen and high pH is related to excess nutrients in the lake. Excess nutrient loads are stressful to aquatic life and would be detrimental to this important urban recreational area. Dates reflect that nutrient TMDL development will be coordinated at Phoenix metropolitan area lakes.	Medium	To initiate in 2007. To complete in 2009.
Gila River From San Pedro River to Mineral Creek 15050100-008 19.8 miles	Suspended sediment (2006)	Sediment may pose a threat to aquatic life. Extensive monitoring will be needed to determine sources. TMDL may be complex due to the size of the watershed. Coordinate development of this TMDL with other suspended sediment TMDLs on the Gila River (see Upper Gila Watershed).	Low	To initiate 2009. To complete 2011.
Gila River From Centennial Wash to Gillespie Dam 15070101-008 5 miles	Boron (1992) selenium (2004)	The federally protected Yuma clapper rail and Southwest willow flycatcher have been found in this area and could be negatively impacted by elevated selenium. Elevated boron can reduce crop production. Both pollutants may be associated with the extensive agriculture in the area; however, TMDL may be complex due to the large number of potential sources and seasonal influences. ADEQ will coordinate with boron and selenium TMDLs downstream on Gila River near Dome.	High	To initiate in 2009. To complete in 2011.

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING	TMDL SCHEDULE
Hassayampa River From headwaters to Copper Creek 15070103-007A	Low pH (2006)	Cadmium, copper, and zinc TMDLs were completed in 2002. Actions to reduce metal loads will also address the low pH; therefore, development of a pH TMDL is a low priority.	Low	Initiate in 2012. To complete in 2014.
Mineral Creek From Devils Canyon to Gila River 15050100-012B	Selenium (2004)	Mining operation has been collecting samples to determine sources of selenium and causes of low dissolved oxygen. Mine will be submitting plans and initiating actions to mitigate increases in selenium concentrations within the diversion tunnel. When submitted, ADEQ will move this to category 4B.	Medium	Terms of consent decree should negate need for TMDL.
	Low dissolved oxygen (2006)	Low dissolved oxygen may be due to surface water diversion around mining operation. Will coordinate TMDL with development of the selenium TMDL.	Low	To initiate in 2007. To complete in 2009.
Queen Creek From headwaters to Potts Canyon 15050100-014A and 15050100-014B 15 miles (total)	Copper (2002 one reach, 2004 second reach)	TMDL in progress. Copper poses a risk to aquatic life and wildlife. The TMDL is being developed and should be completed in 2007.	Medium	Initiated in 2004. To complete in 2009.
<b>Salt Watershed</b>				
Christopher Creek From headwaters to Tonto Creek 15060105-353	Phosphorus (2006)	<i>E. coli</i> bacteria TMDLs were completed in 2004. Actions to reduce <i>E. coli</i> bacteria loadings will also reduce phosphorus loadings; therefore, development of a phosphorus TMDL is a low priority. Will coordinate with Tonto Creek TMDLs.	Low	To initiate in 2008. To complete in 2010.
<b><u>Low dissolved oxygen in Salt River and its reservoirs</u></b> 1. Apache Lake 15060106A-0070 2. Canyon Lake 15060106A-0250 3. Salt River From Stewart Mountain Dam to Verde River 15060106A-003  10 miles  2347 acres (total)	Low dissolved oxygen (2004 – Canyon Lake and Salt River) (2006 – Apache Lake)	Low dissolved oxygen can be a symptom of excess nutrient loads. Such loadings can be stressful to aquatic life and even lead to fish kills, which would be detrimental to this important recreational area. The federally protected Yuma clapper rail and bald eagle in this area should not be negatively impacted by the low dissolved oxygen. Narrative nutrient implementation guidance, when adopted, will be used to determine if the low dissolved oxygen is related to excess nutrients in the lake. ADEQ intends to change the designated use from A&Wc to A&Ww during the current Triennial Review of surface water quality standards, which will reduce the number of exceedances. However, low dissolved oxygen will still not be sufficient during several monitoring events. ADEQ intends to coordinate development of TMDLs within the Salt River chain of reservoirs.	Medium	To initiate in 2010. To complete in 2012.
Five Point Mountain Tributary From headwaters to Pinto Creek 15060103-885 2.9 miles	Copper (2006)	Site specific criteria are currently being developed in support of a Phase II Copper TMDL. The federally protected Colorado pikeminnow occurs in this area and could be negatively impacted by the copper. There is wide public support for development of TMDLs in Pinto Creek.	High	Initiated in 2004. To complete TMDL once site specific criteria are adopted (2006). Phase II copper TMDL to be completed in 2009.
Pinto Creek From West Fork Pinto Creek to Roosevelt Lake 15060103-018C 17.8 miles	Selenium (2004)	The federally protected Colorado pikeminnow and bald eagle both occur in this area and could be negatively impacted by the selenium. There is wide public support for development of TMDLs in Pinto Creek. Monitoring to support the Phase II copper TMDL should also be useful in completing the selenium TMDL.	High	To initiate in 2009. To complete in 2011.
Salt River From Pinal Creek to Roosevelt Dam 15060103-004 7.5 miles	Suspended sediment (2006)	Chronically elevated suspended sediment can have negative impacts on aquatic life, especially during critical periods of reproduction. Sediment may be transporting pollutants into Roosevelt Lake, an important reservoir and recreational area.	Medium	To initiate in 2010. To complete in 2012.
Tonto Creek From headwaters to unnamed tributary 15060105-013A 8.1 miles	Phosphorus, dissolved oxygen (2006)	Nitrogen and <i>E. coli</i> bacteria TMDLs were completed in 2004. Actions to reduce nitrogen and <i>E. coli</i> bacteria loadings will also reduce phosphorus loadings and increase dissolved oxygen; therefore, development of the dissolved oxygen and phosphorus TMDLs are a low priority. Will coordinate with Christopher Creek TMDL.	Low	To initiate in 2008. To complete in 2010.

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING	TMDL SCHEDULE
<b>San Pedro Watershed</b>				
Brewery Gulch From headwaters to Mule Gulch 15080301-337 1 mile	Copper (2004)	Part of Mule Gulch TMDL (see below)		
Mule Gulch From headwaters to Lavender Pit 15080301-090A 3 miles	Copper (1990)	Part of Mule Gulch TMDL (see below)		
Mule Gulch Lavender Pit to Bisbee WWTP discharge 15080301-090B 0.8 miles	Copper (1990)	Part of Mule Gulch TMDL (see below)		
Mule Gulch From Bisbee WWTP discharge to Highway 80 bridge 15080301- 090C 3.8 miles	Copper, cadmium, zinc, and low pH (1990)	Currently establishing site-specific criteria in support of a TMDL. This metal contamination represents a significant threat to wildlife and human health due to the magnitude and frequency of the Exceedances. This TMDL involves a large and heavily impacted mining area, where site-specific standards need to be developed before the TMDL can be completed. Long term drought conditions have increased the difficulty collecting samples to identify sources and to model loadings.	Medium	Initiated in 2000. To complete TMDL after site specific criteria are established (2009).
San Pedro River From Babocomari Creek to Dragoon Wash 15050202-003 17 miles	<i>E. coli</i> (2004)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. The TMDL may be complicated due to the size of the watershed and drainage from Mexico. Monitoring will be coordinated with other TMDLs along the San Pedro.	High	Initiated in 2006. To complete in 2009.
San Pedro River From Dragoon Wash to Tres Alamos Wash 15050202-002 16 miles	Nitrate (1990)	ADEQ's WQARF (superfund cleanup) Program is working with this site. The facility has instituted several actions to bring the surface and ground water into compliance with its standards and is conducting monitoring at several sites along the San Pedro River. Although surface water quality is improving, cleanup will take time as there is significant contamination of ground water, which seeps into the San Pedro.	Low	Ongoing Superfund remediation and monitoring. Will initiate TMDL if WQARF cleanup is not effective.
San Pedro River From Aravaipa Creek to Gila River 15050203-001 14.8 miles	<i>E. coli</i> (2004)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. The large drainage area may make identifying sources more difficult. Monitoring will be coordinated with other TMDLs in the San Pedro.	High	Initiated in 2006 To complete in 2009.
	Selenium (2004)	The federally protected bald eagle and Southwest willow flycatcher found in this area may be negatively impacted by the elevated selenium. The large drainage area may make identifying sources more difficult. Monitoring will be coordinated with other TMDLs in the San Pedro.	High	Initiated in 2006. To complete in 2009.
<b>Santa Cruz Watershed</b>				

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING	TMDL SCHEDULE
Nogales Wash 15050301-011 6 miles	Ammonia (2004), chlorine (1996), Copper (2004), <i>E. coli</i> (1998)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. Ammonia, chlorine, copper, and low dissolved oxygen are significant threats to aquatic life. The Friends of the Santa Cruz is interested in obtaining high quality water in the Santa Cruz River and Nogales Wash area. Sources are known – deteriorated infrastructure in Mexico that sends raw sewage into Arizona. Implementing corrective actions requires funding and is dependent on international negotiations. Chlorine is added to the raw sewage due to human health concerns. TMDLs will be developed if needed after facility upgrades are complete.	Low	Initiated in 2008. To complete by 2010.
Santa Cruz River Mexico border – Nogales WWTP 15050301-010 17 miles	<i>E. coli</i> (2002)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. The Friends of the Santa Cruz is interested in maintaining high quality water in the Santa Cruz River and Nogales Wash area. Several years of drought has interfered with collecting samples to determine source loadings. TMDL may be more complex because sources contributions may be in Mexico.	High	Initiated in 2008. To complete by 2010.
Sonoita Creek From 750 feet below WWTP to Patagonia Lake 15050301-013C 9.03 miles	Zinc (2004)	The federally protected Gila topminnow occurs in this reach and could be negatively impacted by dissolved zinc. Source of zinc has not been investigated; however, zinc is impairing both Alum Wash and Three R Canyon, which are tributaries located upstream (TMDLs completed on those tributaries in 2003).	High	To initiate in 2006. To complete in 2009.
	Low dissolved oxygen (1998)	The federally protected Gila topminnow occurs in this reach and could be negatively impacted by low dissolved oxygen. The low dissolved oxygen occurs immediately below the Patagonia WWTP discharge and in an area of ground water upwelling.	High	To initiate in 2006. To complete in 2009.
<b>Upper Gila Watershed</b>				
Blue River From Strayhorse Creek to San Francisco River 15040004-025B 25.4 Miles	<i>E. coli</i> (2006)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. Monitoring is needed to determine sources of bacterial contamination. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries.	High	To initiate in 2009. To complete in 2011.
Cave Creek From headwaters to South Fork of Cave Creek 15040006-852A 8 miles	Selenium (2004)	Selenium may be toxic to aquatic life or species that feed on them. This stream is classified as a “unique water.” The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries. Initial investigations and monitoring indicates that sources are likely natural; therefore, TMDL development has a lower priority.	Medium	Initiated in 2006. To complete in 2009.
Gila River From New Mexico border to Bitter Creek 15040002-004 16.3 miles	<i>E. coli</i> (2006)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries. The TMDL is complex due to the size of the watershed (nearly 8,000 square miles extending into New Mexico).	High	To initiate in 2006. To complete in 2009.
	Suspended sediment (2006)	Suspended sediment may pose a risk to aquatic life. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries. The TMDL is complex due to the size of the watershed that extends into New Mexico (nearly 8,000 square miles). TMDL development along the Gila River will be coordinated.	Low	To initiate in 2006. To complete in 2009.

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING	TMDL SCHEDULE
Gila River From Skully Creek to San Francisco River 15040002-001 15 miles	Selenium (2004)	Selenium may be toxic to aquatic life or species that feed on them. The selenium is only slightly over the water quality criteria, so may not negatively impact the federally protected spinedace and loach minnow that occur in this area. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries. The TMDL is complex due to the size of the watershed that extends into New Mexico (nearly 8,000 square miles). Dates reflect that TMDL development along the Gila River will be coordinated.	Medium	To initiate in 2006 To complete in 2009.
Gila River From Bonita Creek to Yuma Wash 15040005-022 6 miles	<i>E. coli</i> bacteria (2004)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries. The TMDLs are complex due to the size of the watershed that extends into New Mexico (nearly 8,000 square miles).	High	To initiate in 2006. To complete in 2009.
San Francisco River From Blue River to Limestone Gulch 15040004-003 18.7 miles	<i>E. coli</i> (2006)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries.	High	To initiate in 2009. To complete in 2011.
<b>Verde Watershed</b>				
East Verde River From Ellison Creek to American Gulch 15060203-022B 20 miles	Selenium (2004)	Selenium may be toxic to aquatic life or species that feed on them. Monitoring is needed to determine source loadings and contribution from natural sources. The selenium is only slightly over the water quality criteria, so it is not known whether federally protected Gila trout occurs in this area will be negatively impacted by the elevated selenium.	Low	To initiate in 2009. To complete in 2011.
East Verde River From American Gulch to Verde River 15060203-022C 26 miles	Arsenic and boron (2006)	Arsenic and boron may present public health risks to people using this segment as a drinking water source or for swimming. This segment is near Payson, Arizona, and provides important recreational opportunities.	High	To initiate in 2009. To complete in 2011.
<b><u>Bacteria TMDL</u></b> 1. Oak Creek From headwaters to Spring Creek 15060202-019, -018A, -018B, -018C, 017 2. Spring Creek From headwaters to Oak Creek 15060202-022 50 miles (total)	<i>E. coli</i> bacteria (1992 – 018B) (2006 – the other segments)	Exceedances of <i>Escherichia coli</i> bacteria criteria may represent a public health concern if people are swimming or even wading in the water. Monitoring during the ongoing Phase II <i>E. coli</i> TMDL has shown that bacteria contamination occurs in more reaches of Oak Creek and some of its tributaries. Complex TMDL due to potential sources within the watershed, heavy recreational use during summer holidays, and natural bacterial contamination during runoff events.	High	Initiated Phase II <i>E. coli</i> TMDL in 2004 To complete in 2009.

# EPA TMDL Schedule and Priority Ranking

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING AND SCHEDULE
<b>Bill Williams Watershed</b>			
Alamo Lake 15030204-0040 1,414 acres	Mercury (in fish tissue) (2002)	A mercury fish consumption advisory was issued in 2004. Fish in this lake are also a food source for the bald eagle, a federally listed as Threatened species. The lake supports significant sport fishing. A mercury TMDL was initiated in 2004 and is expected to be approved in 2006. ADEQ is currently collecting atmospheric deposition data for mercury.	High. Initiated in 2004. To complete in 2009.
Boulder Creek From unnamed tributary to Wilder Creek 15030202-006B 14.4 miles  Boulder Creek From Wilder Creek to Butte Creek 15030202-005A 1.4 miles  Burro Creek From Boulder Creek to Black Canyon Creek 15030202-004 17.2 miles	Mercury (2004)	Although fishing is unlikely due to the intermittent nature of this low desert stream, water in Boulder Creek flows to Lake Alamo, which has a fish consumption advisory for mercury. Mercury loadings from the Burro Creek/Boulder Creek area will be addressed in the Alamo Lake mercury TMDL currently being developed. Remediation actions on tailings piles along Boulder Creek should help reduce mercury loadings. Therefore, development of a mercury TMDL here is a lower priority.	Low. Initiate in 2011. Complete in 2013.
Coors Lake 15030202-5000 230 acres	Mercury (2004)	Coors Lake is on Butte Creek, a tributary to Boulder Creek (listed above). A fish consumption advisory due to mercury contamination was issued in 2004. Low priority ranking is contingent on restricting fishing at this privately owned lake.	Low. Initiate in 2011. Complete in 2013.
<b>Colorado-Grand Canyon Watershed</b>			
<b>Colorado-Lower Gila Watershed</b>			
Painted Rocks Borrow Pit Lake 15070201-1010 180 acres	DDT metabolites, toxaphene, chlordane in fish tissue (2002)	(See discussion and schedule in Middle Gila – Painted Rocks Pesticide Contamination) TMDL will be coordinated with pesticide TMDLs in the Middle Gila.	High.
<b>Little Colorado Watershed</b>			
Bear Canyon Lake 15020008-0130 55 acres	pH (2004)	This is an important fishing and recreational area. High pH may be a symptom of narrative nutrient violations and may stress aquatic life in the lake. Narrative nutrient implementation guidance, when adopted, will be used to determine if high pH values are related to excess nutrients. Investigation and monitoring is needed to identify sources.	Medium. Initiate in 2009. To complete in 2011.
<b><u>Regional mercury TMDL</u></b>  1. Lake Mary, Upper 15020015-0900  2. Lake Mary, Lower 15020015-0890  3. Long Lake 15020008-0820  4. Soldiers Lake 15020008-1430  5. Soldiers Annex Lake 15020008-1440  1900 acres (total)	Mercury in fish tissue (2002)	Mercury fish consumption advisories were issued at all 5 of these lakes in 2002-2003. Excess mercury in fish tissue can be toxic to humans and other animals that eat the fish. These lakes are important recreational resources. ADEQ is currently collecting atmospheric deposition data in support of mercury TMDLs and plans This regional mercury TMDL is to be completed in 2006.	High. Initiated in 2003. To complete in 2009.

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Little Colorado River From Silver Creek to Carr Wash 15020002-004 6 miles	Suspended sediment (2004)	Sediment may pose a threat to aquatic life. The drainage is more than 8,000 square miles, so determining the source of contamination may be complex. Substantial monitoring data is needed to identify sources. Dates reflect that both TMDLs will be developed at the same time.	To initiate in 2007. To complete in 2009.
Lyman Lake 15020001-0850 1308 acres	Mercury in fish tissue (2004)	A fish consumption advisory for mercury was issued in 2002. Excess mercury in fish tissue can be toxic to humans and other animals that eat the fish. This lake is an important recreational area. Additional monitoring is needed to identify sources.	High. Initiate in 2008. To complete in 2010.
<b>Middle Gila Watershed</b>			
<u><b>Painted Rock Pesticide Contamination Area:</b></u> A. Painted Rocks Reservoir 15070101-1020A  B. Painted Rocks Borrow Pit Lake 15070201-1010  C. Gila River reaches from Salt River to Painted Rocks Reservoir 15071010-015, -014, -010, -009, -008, -007, -005, -001  D. Salt River, Below 23 <sup>rd</sup> Ave WWTP 15060106B-001D  E. Hassayampa River below Buckeye Canal 15070103-001B 99 miles (total) 100 acres (total)	DDT metabolites, toxaphene, and chlordane in fish tissue (2002)	These pesticides still present a high risk to aquatic life and species that prey on them, including humans. A fish consumption advisory is issued. Federally protected Yuma clapper rail and Southwest willow flycatchers sighted in this area could be negatively impacted by the pesticides. This will be a very complex TMDL due to the size of the drainage area and potential sources. This TMDL will require significant monitoring resources to determine any current sources of these historically used pesticides. These pesticides have been banned from use for more than 30 years.	High. Initiate in 2009. To complete in 2011.
<b>Salt Watershed</b>			
Crescent Lake 15060101-0420 157 acres	pH (2002)	Excess nutrient loads can lead to fish kills, which would be detrimental to this important recreational area. Investigation and monitoring is needed to identify sources. Narrative nutrient implementation guidance, when adopted, will be used to determine if the high pH is related to excess nutrients in the lake.	Medium. Initiate in 2010. To complete in 2012.
Tonto Creek From headwaters to unnamed tributary 15060105-013A 8.1 miles	Low dissolved oxygen (2004)	Nitrogen and <i>E. coli</i> bacteria TMDLs were completed in 2004. Actions to reduce nitrogen and <i>E. coli</i> loadings will also increase dissolved oxygen; therefore, development of the dissolved oxygen TMDLs are a low priority. Will coordinate with Christopher Creek TMDL.	Low. Initiate in 2010. To complete in 2012.
<b>San Pedro Watershed</b>			
Mule Gulch Lavender Pit to Bisbee WWTP discharge 15080301-090B 0.8 miles	Low pH (2002)	Currently establishing site-specific criteria in support of a TMDL. This metal contamination represents a significant threat to wildlife and human health due to the magnitude and frequency of the exceedances. This TMDL involves a large and heavily impacted mining area, where site-specific standards need to be developed before the TMDL can be completed. Long term drought conditions have increased the difficulty collecting samples to identify sources and to model loadings.	Medium. Initiated in 2000. Complete TMDL after site specific criteria are established (2009).
<b>Santa Cruz Watershed</b>			

ASSESSMENT UNIT	POLLUTANT (YEAR LISTED)	DISCUSSION	PRIORITY RANKING AND SCHEDULE
Parker Canyon Lake 15050301-1040 130 acres	Mercury in fish tissue (2004)	Fish consumption advisory issued. Excess mercury in fish tissue can be toxic to humans and other animals that eat the fish. Lake is an important recreational area. Additional monitoring is needed to identify sources. ADEQ will be collecting atmospheric deposition data in support of mercury TMDLs.	High. Initiated in 2006. To complete in 2009.
Rose Canyon Lake 15050302-1260 7 acres	pH (2004)	Low pH poses risks to aquatic life because it allows the release of toxic metals from the lake bottom sediments into the water column. A major wildfire occurred in 2003 in the drainage area of this small, deep recreational attraction on Mount Lemmon. Although exceedances occurred prior to the fire, the TMDL will also need to look at long term impacts of this fire on lake pH.	Medium. Initiate in 2009. To complete in 2011.
<b>Upper Gila Watershed</b>			
Cave Creek From headwaters to South Fork of Cave Creek 15040006-852A 8 miles	Selenium (2004)	Selenium may be toxic to aquatic life or species that feed on them. This stream is classified as a "unique water. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries. Initial investigations and monitoring indicates that sources are likely natural; therefore, TMDL development has a lower priority.	Medium. Initiate in 2006. To complete in 2009.
Gila River From Bonita Creek to Yuma Wash 15040005-022 6 miles	Sediment (2004)	Sediment may pose a risk to aquatic life. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries. The TMDLs are complex due to the size of the watershed that extends into New Mexico (nearly 8,000 square miles). ADEQ will coordinate with <i>E. coli</i> TMDL on the same reach.	Medium. Initiated in 2006. To complete in 2009.
San Francisco River From Headwaters to New Mexico Border 15040004-023 13.1 miles	Sediment (2004)	Sediment may pose a risk to aquatic life. The Gila Watershed Partnership is interested in maintaining high quality water in the Gila River and its tributaries.	Medium. Initiate in 2009. To complete in 2011.
<b>Verde Watershed</b>			
Granite Creek From headwaters to Willow Creek 15060202-059A 13 miles	Low dissolved oxygen (2004)	Low dissolved oxygen maybe related to nutrient loading. Excess nutrient loads can lead to fish kills. Investigation and monitoring is needed to identify sources.	Low. Initiate in 2010 To complete in 2012.
Watson Lake 15060202-1590 150 acres	Nitrogen, low dissolved oxygen, high pH (2004)	Excess nutrient loads can lead to fish kills, which would be detrimental to this important recreational area. Use narrative nutrient implementation guidance, when adopted, to determine if excess nutrients are impairing the lake. Investigation and monitoring is needed to identify sources.	Medium. Initiate in 2008. To complete in 2010.
Whitehorse Lake 15060202-1630 40 acres	Low dissolved oxygen (2004)	Low dissolved oxygen may pose risks to aquatic life. (Note that newer data does not indicate impairment)	Low. Initiate in 2010. To complete in 2012.

To establish this priority list and schedule the following factors were considered. Those waters with high priority factors will be targeted for TMDL within two years following EPA approval of the 303(d) List, unless specific low priority factors are also cited (see low priority factors with an \* below).

**High Priority Factors:**

1. Substantial threat to health and safety of humans, aquatic life, or wildlife based on
  - a. Number and type of designated uses impaired,
  - b. Type and extent of risk from the impairment to human health or aquatic life,
  - c. Pollutant causing the impairment, or
  - d. Severity, magnitude, and duration the surface water quality standard was exceeded.
2. A new or modified individual NPDES / AZPDES permit is sought for discharge to the impaired water.
3. Surface water is listed as a Unique Water or is part of an area classified as a “wilderness area”, “wild and scenic river” or other federal or state special protection of the water resource.
4. A species listed as “threatened” or “endangered” under the federal Endangered Species Act inhabits an area and the presence of the pollutant in the surface water is likely to jeopardize the listed species.
5. A delay in conducting the TMDL could jeopardize ADEQ’s ability to gather sufficient credible data necessary to develop the TMDL.
6. There is significant public interest and support for development of a TMDL.
7. The surface water or segment has important recreational and economic significance to the public.
8. The pollutant has been listed for eight years or more (starting with the 2002 listing).

**Medium Priority Factors:**

1. The surface water fails to meet more than one designated use.
2. The pollutant exceeds more than one surface water quality standard.
3. The exceedance is correlated to seasonal conditions caused by natural events such as storms, weather patterns, or lake turnover.
4. Actions in the watershed may result in the surface water attaining applicable water quality standards; however, load reductions may take longer than the next 303(d) listing cycle.
5. The type of pollutant and other factors relating to the surface water or segment make the TMDL very complex.
6. ADEQ’s administrative needs, including TMDL schedule commitments with EPA, permitting needs, or basin priorities that require completion of the TMDL.

**Low Priority Factors:**

1. \* ADEQ has formally submitted a proposal to delist the surface water or pollutant to EPA. If ADEQ makes the submission outside of listing process cycle, the change in priority ranking will not be effective until EPA approves the report.
2. \* ADEQ has modified or formally proposed a modification to the applicable surface water quality standard or designated use which would result in the surface water no longer being impaired, but the modification has not yet been approved by EPA.
3. \* The surface water is expected to attain surface water quality standards due to any of the following:
  - a. Recently instituted treatment levels or best management practices in the drainage area,
  - b. Discharges or activities related to the impairment have ceased, or
  - c. Actions have been taken and the controls are in place or scheduled for implementation that are likely to bring the surface water back into compliance.
4. The surface water is ephemeral or intermittent. ADEQ shall re-prioritize the surface water if the presence of the pollutant in the listed water poses a threat to the health and safety of humans, aquatic life, or wildlife using the water (High priority 1) or the pollutant is contributing to the impairment of a downstream, perennial surface water.
5. The pollutant poses a low ecological and human health risk.
6. Insufficient data exist to determine the source of the pollutant load.
7. \* The uncertainty of timely coordination with national and international entities concerning international waters makes TMDL development complex.
8. \* Naturally occurring conditions are a major contributor to the impairment, and a site specific standard will need to be developed before the TMDL can be completed.
9. No documentation or effective analytical tools exist to develop a TMDL for the surface water with reasonable accuracy.

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